



DATA VALIDATION REPORT

Gold King Mine Follow-Up Monitoring

SAMPLE DELIVERY GROUP: 680-127898-1

Prepared by

MEC^X
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I. INTRODUCTION

Task Order Title: Gold King Mine Follow-Up Monitoring
Project No.: 20408.012.001.0285.00
Sample Delivery Group: 680-127898-1
EPA Project Manager: Steve Merritt
Weston Project Manager: Mark Blanchard
TDD No.: 0001/1510-02
Matrix: Water
QC Level: Stage 2A
No. of Samples: 7
No. of Reanalyses/Dilutions: 0
Laboratory: TestAmerica - Denver

Table 1. Sample Identification

<i>Location ID</i>	<i>Lab Sample Name</i>	<i>Matrix Type</i>	<i>Collection Date</i>	<i>Method</i>
CC03D_072216_1230	680-127898-7	Water	7/22/16 12:30 PM	200.7, 200.8, 245.1, 2540 D
CC18_072216_1215	680-127898-6	Water	7/22/16 12:15 PM	200.7, 200.8, 245.1, 2540 D
GSTI_072216_1158	680-127898-4	Water	7/22/16 11:58 AM	200.7, 200.8, 245.1, 2540 D
GSTI_DUP_072216_1158	680-127898-5	Water	7/22/16 11:58 AM	200.7, 200.8, 245.1, 2540 D
GSTO_072216_1054	680-127898-1	Water	7/22/16 10:54 AM	200.7, 200.8, 245.1, 2540 D
GTSC_072216_1122	680-127898-2	Water	7/22/16 11:22 AM	200.7, 200.8, 245.1, 2540 D
GTSP0_072216_1133	680-127898-3	Water	7/22/16 11:33 AM	200.7, 200.8, 245.1, 2540 D

II. Sample Management

The samples were received within the temperature limits of 4°C ±2°C. The samples were received intact, on ice, and properly preserved. The chain-of-custody (COC) was appropriately signed and dated by field and laboratory personnel. The presence or absence of custody seals on the cooler was not specifically noted.

**Data Qualifier Reference Table**

Qualifier	Organics	Inorganics
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit. The associated value is the quantitation limit or the estimated detection limit for dioxins or PCB congeners.	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit. The associated value is the sample detection limit or the quantitation limit for perchlorate only.
UB	The analyte was detected in the sample and in either the associated laboratory blank or field blank. If detected below the reporting limit (RL) the analyte result was reported as non-detected at the RL due to blank contamination. If detected above the RL, the analyte result was reported as non-detected at the reported result due to blank contamination.	The analyte was detected in the sample and in either the associated laboratory blank or field blank. If detected below the reporting limit (RL) the analyte result was reported as non-detected at the RL due to blank contamination. If detected above the RL, the analyte result was reported as non-detected at the reported result due to blank contamination.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
J+	Not applicable	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample, and may have a potential positive bias.
J-	Not applicable	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample, and may have a potential negative bias.



Qualifier	Organics	Inorganics
UJ	The analyte was not deemed above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
UJB	The analyte was detected in the sample and in either the associated laboratory blank or field blank; the analyte result was reported as non-detected at either the RL or the reported result. The reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.	The analyte was detected in the sample and in either the associated laboratory blank or field blank; the analyte result was reported as non-detected at either the RL or the reported result. The reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.	Not applicable.
R	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.

**Qualification Code Reference Table**

Qualifier	Organics	Inorganics
H	Holding times were exceeded.	Holding times were exceeded.
S	Surrogate recovery was outside QC limits.	The sequence or number of standards used for the calibration was incorrect
C	Calibration %RSD or %D was noncompliant.	Correlation coefficient is <0.995 or calibration was noncompliant.
R	Calibration RRF was <0.05.	%R for calibration is not within control limits.
B	Presumed contamination as indicated by the preparation (method) blank results.	Presumed contamination as indicated by the preparation (method) or calibration blank results.
L	Laboratory Blank Spike/Blank Spike Duplicate %R was not within control limits.	Laboratory Control Sample %R was not within control limits.
L1	LCS/LCSD RPD was outside control limits.	LCS/LCSD RPD was outside control limits.
Q	MS/MSD recovery was poor.	MS recovery was poor.
Q1	MS/MSD RPD was outside control limits.	MS/MSD RPD was outside control limits.
E	Not applicable.	Duplicates showed poor agreement.
I	Internal standard performance was unsatisfactory.	ICP ICS results were unsatisfactory.
A	Not applicable.	ICP Serial Dilution %D were not within control limits.
M	Tuning (BFB or DFTPP) was noncompliant.	ICPMS tune was not compliant.
T	Presumed contamination as indicated by the trip blank results.	Not applicable.
+	False positive – reported compound was not present.	Not applicable.
-	False negative – compound was present but not reported.	Not applicable.
F	Presumed contamination as indicated by the FB or ER results.	Presumed contamination as indicated by the FB or ER results.
F1	Field duplicate results were outside the control limit.	Field duplicate results were outside the control limit.
\$	Reported result or other information was incorrect.	Reported result or other information was incorrect.



Qualifier	Organics	Inorganics
?	TIC identity or reported retention time has been changed.	Not applicable.
D	The analysis with this flag should not be used because another more technically sound analysis is available.	The analysis with this flag should not be used because another more technically sound analysis is available.
P	Instrument performance for pesticides was poor.	Post Digestion Spike recovery was not within control limits.
*II, *III	Unusual problems found with the data that have been described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.	Unusual problems found with the data that have been described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.



III. Method Analyses

A. Contract Laboratory Program Statement of Work for Inorganic Superfund Methods, 200.7, 200.8, 245.1—Metals and Mercury

Reviewed By: M. Hilchey

Date Reviewed: August 30, 2016

The samples listed in Table 1 for these analyses were validated based on the guidelines outlined in the *Quality Assurance Project Plan for U.S. EPA Region 8 CERCLA Site Assessment, Sampling and Analysis Plan/Quality Assurance Project Plan for Gold King Mine Release, Silverton, San Juan County, Colorado* (2015), *United States Environmental Protection Agency Contract Laboratory Program Statement of Work for Inorganic Superfund Methods, EPA Methods 200.7, 200.8 and 245.1*, and the *National Functional Guidelines for Inorganic Superfund Data Review* (2010).

- Holding Times: The analytical holding times, 28 days for mercury and six months for the remaining metals, was met.
- Analytical Method Blanks: No target analytes were reported in the method blanks.
- Laboratory Control Samples (LCS): The recoveries were within laboratory control limits of 85-115%.
- Laboratory Duplicates: Laboratory duplicate analyses were not performed on a sample from this SDG. Method precision was evaluated based on matrix spike/matrix spike duplicate results.
- Matrix Spike/Matrix Spike Duplicate (MS/MSD): MS/MSD analyses were performed on the samples below.

Parent Sample	Analysis
GSTO_072216_1054	200.7 total, 200.8 total, 245.1 total
CC03D_072216_1230	200.7 dissolved, 200.8 dissolved
CC18_072216_1215	245.1 dissolved

Results were not assessed when the native concentration was more than 4× the spike amount. The recoveries were within the laboratory control limits of 75-125% for the 200.7 analytes and within 70-130% for mercury and the 200.8 analytes, except as follows. The MS/MSD recoveries for total zinc (392%/381%) and total copper (174%/171%) for sample GSTO_072216_1054 by method 200.8 exceeded the control limits. Associated total results for all samples were qualified as estimated with high bias (J+). The RPDs were ≤20%.



- Post Digestion Spike (PDS): There were no PDS analyses performed on a sample in this SDG.
- Serial Dilution: Serial dilution analyses were not performed.
- Field QC Samples: MEC^X evaluated field quality control (QC) samples, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC^X used the remaining detects to evaluate the associated site samples. Findings associated with field QC samples are summarized below:
 - Field Blanks and Equipment Rinsates: Field blank or equipment blank samples were not identified for this SDG.
 - Field Duplicates: Samples GSTI_072216_1158 and GSTI_DUP_072216_1158 were identified as a field duplicate pair. The RPD for total lead (42%) exceeded the control limit of $\leq 30\%$. Total lead results for the field duplicate samples were qualified as estimated (J). The pair were considered in reasonable agreement.

B. VARIOUS EPA METHODS—General Chemistry

Reviewed By: M. Hilchey

Date Reviewed: August 30, 2016

The samples listed in Table 1 for this analysis were validated based on the guidelines outlined in the *Quality Assurance Project Plan for U.S. EPA Region 8 CERCLA Site Assessment, Sampling and Analysis Plan/Quality Assurance Project Plan for Gold King Mine Release, Silverton, San Juan County, Colorado* (2015), *United States Environmental Protection Agency Contract Laboratory Program Statement of Work for Inorganic Superfund Methods, Standard Methods for the Examination of Water and Wastewater 2540D*, and the *National Functional Guidelines for Superfund Inorganic Data Review* (2010).

- Holding Times: Total suspended solids (TSS) was analyzed within the required holding time of 7 days.
- Analytical Method Blanks: There were no detects in the method blank.
- Laboratory Control Samples: LCS/LCSD recoveries were within the laboratory control limits of 80-120%, and RPD was within the QAPP control limit of $\leq 20\%$.
- Laboratory Duplicates: Laboratory duplicate analysis was performed on sample GSTI_072216_1158. The RPD was within the QAPP control limit of $\leq 20\%$.



- Matrix Spike/Matrix Spike Duplicate (MS/MSD): MS/MSD analyses were not performed.
- Field QC Samples: MEC^X evaluated field quality control (QC) samples, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC^X used the remaining detects to evaluate the associated site samples. Findings associated with field QC samples are summarized below:
 - Field Blanks and Equipment Rinsates: This SDG had no identified field blank or equipment rinsate samples.
 - Field Duplicates: Samples GSTI_072216_1158 and GSTI_DUP_072216_1158 were identified as a field duplicate pair. The RPD was within the reasonable control limit of $\leq 30\%$ and the pair was considered in good agreement.

Validated Sample Result Forms: 680-127898-1

Analysis Method 200.7 Rev 4.4

Sample Name GSTO_072216_1054

Matrix Type: Water

Lab Sample Name: 680-127898-1

Sample Date: 7/22/2016 10:54:00 AM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	T	7429-90-5	1100	200	24	ug/L			
Aluminum, Dissolved	D	7429-90-5	860	200	24	ug/L			
Calcium	T	7440-70-2	590000	500	25	ug/L			
Calcium, Dissolved	D	7440-70-2	590000	500	25	ug/L			
Iron	T	7439-89-6	590	50	17	ug/L			
Iron, Dissolved	D	7439-89-6	17	50	17	ug/L	U	U	
Magnesium	T	7439-95-4	20000	500	33	ug/L			
Magnesium, Dissolved	D	7439-95-4	20000	500	33	ug/L			
Potassium	T	7440-09-7	2500	1000	17	ug/L			
Potassium, Dissolved	D	7440-09-7	2600	1000	17	ug/L			
Sodium	T	7440-23-5	4800	1000	480	ug/L			
Sodium, Dissolved	D	7440-23-5	5200	1000	480	ug/L			

Sample Name GTSC_072216_1122

Matrix Type: Water

Lab Sample Name: 680-127898-2

Sample Date: 7/22/2016 11:22:00 AM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	T	7429-90-5	54000	200	24	ug/L			
Aluminum, Dissolved	D	7429-90-5	4100	200	24	ug/L			
Calcium	T	7440-70-2	660000	5000	250	ug/L			
Calcium, Dissolved	D	7440-70-2	600000	500	25	ug/L			
Iron	T	7439-89-6	170000	50	17	ug/L			
Iron, Dissolved	D	7439-89-6	530	50	17	ug/L			
Magnesium	T	7439-95-4	33000	5000	330	ug/L			
Magnesium, Dissolved	D	7439-95-4	11000	500	33	ug/L			
Potassium	T	7440-09-7	2600	1000	17	ug/L			
Potassium, Dissolved	D	7440-09-7	2500	1000	17	ug/L			
Sodium	T	7440-23-5	4800	10000	4800	ug/L	U	U	
Sodium, Dissolved	D	7440-23-5	4900	1000	480	ug/L			

Analysis Method 200.7 Rev 4.4

Sample Name		GTSPO_072216_1133				Matrix Type: Water			
Lab Sample Name:		680-127898-3		Sample Date:		7/22/2016 11:33:00 AM			
Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	T	7429-90-5	38000	200	24	ug/L			
Aluminum, Dissolved	D	7429-90-5	39000	200	24	ug/L			
Calcium	T	7440-70-2	360000	500	25	ug/L			
Calcium, Dissolved	D	7440-70-2	370000	500	25	ug/L			
Iron	T	7439-89-6	120000	50	17	ug/L			
Iron, Dissolved	D	7439-89-6	97000	50	17	ug/L			
Magnesium	T	7439-95-4	25000	500	33	ug/L			
Magnesium, Dissolved	D	7439-95-4	26000	500	33	ug/L			
Potassium	T	7440-09-7	2400	1000	17	ug/L			
Potassium, Dissolved	D	7440-09-7	2500	1000	17	ug/L			
Sodium	T	7440-23-5	2600	1000	480	ug/L			
Sodium, Dissolved	D	7440-23-5	2900	1000	480	ug/L			

Sample Name		GSTI_072216_1158				Matrix Type: Water			
Lab Sample Name:		680-127898-4		Sample Date:		7/22/2016 11:58:00 AM			
Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	T	7429-90-5	42000	200	24	ug/L			
Aluminum, Dissolved	D	7429-90-5	37000	200	24	ug/L			
Calcium	T	7440-70-2	350000	500	25	ug/L			
Calcium, Dissolved	D	7440-70-2	350000	500	25	ug/L			
Iron	T	7439-89-6	290000	50	17	ug/L			
Iron, Dissolved	D	7439-89-6	97000	50	17	ug/L			
Magnesium	T	7439-95-4	24000	500	33	ug/L			
Magnesium, Dissolved	D	7439-95-4	24000	500	33	ug/L			
Potassium	T	7440-09-7	2400	1000	17	ug/L			
Potassium, Dissolved	D	7440-09-7	2300	1000	17	ug/L			
Sodium	T	7440-23-5	2500	1000	480	ug/L			
Sodium, Dissolved	D	7440-23-5	2500	1000	480	ug/L			

Sample Name		GSTI_DUP_072216_1158					Matrix Type: Water		
Lab Sample Name:		680-127898-5		Sample Date:		7/22/2016 11:58:00 AM			
Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	T	7429-90-5	42000	200	24	ug/L			

Analysis Method 200.7 Rev 4.4

Aluminum, Dissolved	D	7429-90-5	37000	200	24	ug/L
Calcium	T	7440-70-2	350000	500	25	ug/L
Calcium, Dissolved	D	7440-70-2	350000	500	25	ug/L
Iron	T	7439-89-6	300000	50	17	ug/L
Iron, Dissolved	D	7439-89-6	96000	50	17	ug/L
Magnesium	T	7439-95-4	24000	500	33	ug/L
Magnesium, Dissolved	D	7439-95-4	24000	500	33	ug/L
Potassium	T	7440-09-7	2500	1000	17	ug/L
Potassium, Dissolved	D	7440-09-7	2300	1000	17	ug/L
Sodium	T	7440-23-5	2400	1000	480	ug/L
Sodium, Dissolved	D	7440-23-5	2600	1000	480	ug/L

Sample Name CC18_072216_1215

Matrix Type: Water

Lab Sample Name: 680-127898-6

Sample Date: 7/22/2016 12:15:00 PM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	T	7429-90-5	2700	200	24	ug/L			
Aluminum, Dissolved	D	7429-90-5	2100	200	24	ug/L			
Calcium	T	7440-70-2	120000	500	25	ug/L			
Calcium, Dissolved	D	7440-70-2	120000	500	25	ug/L			
Iron	T	7439-89-6	14000	50	17	ug/L			
Iron, Dissolved	D	7439-89-6	13000	50	17	ug/L			
Magnesium	T	7439-95-4	9700	500	33	ug/L			
Magnesium, Dissolved	D	7439-95-4	9500	500	33	ug/L			
Potassium	T	7440-09-7	780	1000	17	ug/L	J	J	
Potassium, Dissolved	D	7440-09-7	790	1000	17	ug/L	J	J	
Sodium	T	7440-23-5	2500	1000	480	ug/L			
Sodium, Dissolved	D	7440-23-5	2500	1000	480	ug/L			

Sample Name CC03D_072216_1230

Matrix Type: Water

Lab Sample Name: 680-127898-7

Sample Date: 7/22/2016 12:30:00 PM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	T	7429-90-5	4300	200	24	ug/L			
Aluminum, Dissolved	D	7429-90-5	1400	200	24	ug/L			
Calcium	T	7440-70-2	410000	5000	250	ug/L			
Calcium, Dissolved	D	7440-70-2	410000	5000	250	ug/L			
Iron	T	7439-89-6	89000	50	17	ug/L			
Iron, Dissolved	D	7439-89-6	84000	50	17	ug/L			
Magnesium	T	7439-95-4	24000	5000	330	ug/L			

Analysis Method 200.7 Rev 4.4

Magnesium, Dissolved	D	7439-95-4	24000	5000	330	ug/L
Potassium	T	7440-09-7	2100	1000	17	ug/L
Potassium, Dissolved	D	7440-09-7	2000	1000	17	ug/L
Sodium	T	7440-23-5	7100	1000	480	ug/L
Sodium, Dissolved	D	7440-23-5	6900	1000	480	ug/L

Analysis Method 200.8

Sample Name	GSTO_072216_1054					Matrix Type:	Water		
Lab Sample Name:	680-127898-1		Sample Date:	7/22/2016 10:54:00 AM					

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	T	7440-36-0	0.4	1	0.4	ug/L	U	U	
Antimony, Dissolved	D	7440-36-0	0.4	1	0.4	ug/L	U	U	
Arsenic	T	7440-38-2	0.37	1	0.37	ug/L	U	U	
Arsenic, Dissolved	D	7440-38-2	0.37	1	0.37	ug/L	U	U	
Barium	T	7440-39-3	8.8	2	0.14	ug/L			
Barium, Dissolved	D	7440-39-3	9.6	2	0.14	ug/L			
Beryllium	T	7440-41-7	0.15	0.4	0.15	ug/L	U	U	
Beryllium, Dissolved	D	7440-41-7	0.15	0.4	0.15	ug/L	U	U	
Cadmium	T	7440-43-9	3.1	0.5	0.043	ug/L			
Cadmium, Dissolved	D	7440-43-9	2.8	0.5	0.043	ug/L			
Chromium	T	7440-47-3	1	2	1	ug/L	U	U	
Chromium, Dissolved	D	7440-47-3	1	2	1	ug/L	U	U	
Cobalt	T	7440-48-4	4.1	0.4	0.12	ug/L			
Cobalt, Dissolved	D	7440-48-4	3.7	0.4	0.12	ug/L			
Copper	T	7440-50-8	34	5	0.5	ug/L		J+	Q
Copper, Dissolved	D	7440-50-8	1.9	5	0.5	ug/L	J F1	J	
Lead	T	7439-92-1	0.24	0.3	0.06	ug/L	J	J	
Lead, Dissolved	D	7439-92-1	0.12	0.3	0.06	ug/L	J	J	
Manganese	T	7439-96-5	7500	250	120	ug/L			
Manganese, Dissolved	D	7439-96-5	7400	25	12	ug/L			
Molybdenum	T	7439-98-7	1.3	1	0.45	ug/L			
Molybdenum, Dissolved	D	7439-98-7	1.4	1	0.45	ug/L			
Nickel	T	7440-02-0	6.3	5	0.4	ug/L			
Nickel, Dissolved	D	7440-02-0	7.7	5	0.4	ug/L			
Selenium	T	7782-49-2	0.58	2	0.58	ug/L	U	U	
Selenium, Dissolved	D	7782-49-2	0.58	2	0.58	ug/L	U	U	
Silver	T	7440-22-4	0.1	1	0.1	ug/L	U	U	
Silver, Dissolved	D	7440-22-4	0.1	1	0.1	ug/L	U	U	
Thallium	T	7440-28-0	0.26	0.2	0.1	ug/L			

Analysis Method 200.8

Thallium, Dissolved	D	7440-28-0	0.27	0.2	0.1	ug/L			
Vanadium	T	7440-62-2	0.3	1	0.3	ug/L	U	U	
Vanadium, Dissolved	D	7440-62-2	0.3	1	0.3	ug/L	U	U	
Zinc	T	7440-66-6	180	20	2.8	ug/L		J+	Q
Zinc, Dissolved	D	7440-66-6	61	20	2.8	ug/L	F1		

Sample Name GTSC_072216_1122

Matrix Type: Water

Lab Sample Name: 680-127898-2

Sample Date: 7/22/2016 11:22:00 AM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	T	7440-36-0	2.2	1	0.4	ug/L			
Antimony, Dissolved	D	7440-36-0	0.4	1	0.4	ug/L	U	U	
Arsenic	T	7440-38-2	46	1	0.37	ug/L			
Arsenic, Dissolved	D	7440-38-2	0.37	1	0.37	ug/L	U	U	
Barium	T	7440-39-3	16	2	0.14	ug/L			
Barium, Dissolved	D	7440-39-3	8.9	2	0.14	ug/L			
Beryllium	T	7440-41-7	13	0.4	0.15	ug/L			
Beryllium, Dissolved	D	7440-41-7	0.15	0.4	0.15	ug/L	U	U	
Cadmium	T	7440-43-9	150	50	4.3	ug/L			
Cadmium, Dissolved	D	7440-43-9	0.46	0.5	0.043	ug/L	J	J	
Chromium	T	7440-47-3	14	2	1	ug/L			
Chromium, Dissolved	D	7440-47-3	1	2	1	ug/L	U	U	
Cobalt	T	7440-48-4	140	0.4	0.12	ug/L			
Cobalt, Dissolved	D	7440-48-4	1.3	0.4	0.12	ug/L			
Copper	T	7440-50-8	12000	500	50	ug/L		J+	Q
Copper, Dissolved	D	7440-50-8	37	5	0.5	ug/L			
Lead	T	7439-92-1	57	0.3	0.06	ug/L			
Lead, Dissolved	D	7439-92-1	0.26	0.3	0.06	ug/L	J	J	
Manganese	T	7439-96-5	40000	250	120	ug/L			
Manganese, Dissolved	D	7439-96-5	180	2.5	1.2	ug/L			
Molybdenum	T	7439-98-7	45	100	45	ug/L	U	U	
Molybdenum, Dissolved	D	7439-98-7	1.1	1	0.45	ug/L			
Nickel	T	7440-02-0	99	5	0.4	ug/L			
Nickel, Dissolved	D	7440-02-0	6	5	0.4	ug/L			
Selenium	T	7782-49-2	2.7	2	0.58	ug/L			
Selenium, Dissolved	D	7782-49-2	0.58	2	0.58	ug/L	U	U	
Silver	T	7440-22-4	0.12	1	0.1	ug/L	J	J	
Silver, Dissolved	D	7440-22-4	0.1	1	0.1	ug/L	U	U	
Thallium	T	7440-28-0	0.34	0.2	0.1	ug/L			
Thallium, Dissolved	D	7440-28-0	0.21	0.2	0.1	ug/L			
Vanadium	T	7440-62-2	39	1	0.3	ug/L			

Analysis Method 200.8

Vanadium, Dissolved D		7440-62-2	0.3	1	0.3	ug/L	U	U	
Zinc	T	7440-66-6	38000	2000	280	ug/L		J+	Q
Zinc, Dissolved	D	7440-66-6	130	20	2.8	ug/L			

Sample Name GTSPO_072216_1133

Matrix Type: Water

Lab Sample Name: 680-127898-3

Sample Date: 7/22/2016 11:33:00 AM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	T	7440-36-0	1.6	1	0.4	ug/L			
Antimony, Dissolved	D	7440-36-0	0.6	1	0.4	ug/L	J	J	
Arsenic	T	7440-38-2	31	1	0.37	ug/L			
Arsenic, Dissolved	D	7440-38-2	8.4	1	0.37	ug/L			
Barium	T	7440-39-3	12	2	0.14	ug/L			
Barium, Dissolved	D	7440-39-3	11	2	0.14	ug/L			
Beryllium	T	7440-41-7	9.4	0.4	0.15	ug/L			
Beryllium, Dissolved	D	7440-41-7	9.3	0.4	0.15	ug/L			
Cadmium	T	7440-43-9	79	0.5	0.043	ug/L			
Cadmium, Dissolved	D	7440-43-9	81	0.5	0.043	ug/L			
Chromium	T	7440-47-3	6.8	2	1	ug/L			
Chromium, Dissolved	D	7440-47-3	5.7	2	1	ug/L			
Cobalt	T	7440-48-4	100	0.4	0.12	ug/L			
Cobalt, Dissolved	D	7440-48-4	100	0.4	0.12	ug/L			
Copper	T	7440-50-8	8400	500	50	ug/L		J+	Q
Copper, Dissolved	D	7440-50-8	8900	500	50	ug/L			
Lead	T	7439-92-1	38	0.3	0.06	ug/L			
Lead, Dissolved	D	7439-92-1	34	0.3	0.06	ug/L			
Manganese	T	7439-96-5	27000	250	120	ug/L			
Manganese, Dissolved	D	7439-96-5	28000	250	120	ug/L			
Molybdenum	T	7439-98-7	45	100	45	ug/L	U	U	
Molybdenum, Dissolved	D	7439-98-7	45	100	45	ug/L	U	U	
Nickel	T	7440-02-0	66	5	0.4	ug/L			
Nickel, Dissolved	D	7440-02-0	68	5	0.4	ug/L			
Selenium	T	7782-49-2	2	2	0.58	ug/L			
Selenium, Dissolved	D	7782-49-2	1.7	2	0.58	ug/L	J	J	
Silver	T	7440-22-4	0.1	1	0.1	ug/L	U	U	
Silver, Dissolved	D	7440-22-4	0.1	1	0.1	ug/L	U	U	
Thallium	T	7440-28-0	0.3	0.2	0.1	ug/L			
Thallium, Dissolved	D	7440-28-0	0.32	0.2	0.1	ug/L			
Vanadium	T	7440-62-2	16	1	0.3	ug/L			
Vanadium, Dissolved	D	7440-62-2	3.9	1	0.3	ug/L			
Zinc	T	7440-66-6	26000	2000	280	ug/L		J+	Q

Analysis Method 200.8

Zinc, Dissolved	D	7440-66-6	28000	2000	280	ug/L			
Sample Name		GSTI_072216_1158					Matrix Type: Water		
Lab Sample Name:		680-127898-4	Sample Date:		7/22/2016 11:58:00 AM				
Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	T	7440-36-0	40	100	40	ug/L	U	U	
Antimony, Dissolved	D	7440-36-0	0.65	1	0.4	ug/L	J	J	
Arsenic	T	7440-38-2	180	1	0.37	ug/L			
Arsenic, Dissolved	D	7440-38-2	12	1	0.37	ug/L			
Barium	T	7440-39-3	16	2	0.14	ug/L			
Barium, Dissolved	D	7440-39-3	12	2	0.14	ug/L			
Beryllium	T	7440-41-7	9.4	0.4	0.15	ug/L			
Beryllium, Dissolved	D	7440-41-7	9.2	0.4	0.15	ug/L			
Cadmium	T	7440-43-9	100	50	4.3	ug/L			
Cadmium, Dissolved	D	7440-43-9	79	0.5	0.043	ug/L			
Chromium	T	7440-47-3	15	2	1	ug/L			
Chromium, Dissolved	D	7440-47-3	5	2	1	ug/L			
Cobalt	T	7440-48-4	98	0.4	0.12	ug/L			
Cobalt, Dissolved	D	7440-48-4	100	0.4	0.12	ug/L			
Copper	T	7440-50-8	8300	500	50	ug/L		J+	Q
Copper, Dissolved	D	7440-50-8	8500	500	50	ug/L			
Lead	T	7439-92-1	65	0.3	0.06	ug/L		J	F1
Lead, Dissolved	D	7439-92-1	34	0.3	0.06	ug/L			
Manganese	T	7439-96-5	26000	250	120	ug/L			
Manganese, Dissolved	D	7439-96-5	27000	250	120	ug/L			
Molybdenum	T	7439-98-7	45	100	45	ug/L	U	U	
Molybdenum, Dissolved	D	7439-98-7	45	100	45	ug/L	U	U	
Nickel	T	7440-02-0	62	5	0.4	ug/L			
Nickel, Dissolved	D	7440-02-0	65	5	0.4	ug/L			
Selenium	T	7782-49-2	3.5	2	0.58	ug/L			
Selenium, Dissolved	D	7782-49-2	1.7	2	0.58	ug/L	J	J	
Silver	T	7440-22-4	10	100	10	ug/L	U	U	
Silver, Dissolved	D	7440-22-4	0.1	1	0.1	ug/L	U	U	
Thallium	T	7440-28-0	0.23	0.2	0.1	ug/L			
Thallium, Dissolved	D	7440-28-0	0.31	0.2	0.1	ug/L			
Vanadium	T	7440-62-2	110	1	0.3	ug/L			
Vanadium, Dissolved	D	7440-62-2	4.5	1	0.3	ug/L			
Zinc	T	7440-66-6	25000	2000	280	ug/L		J+	Q
Zinc, Dissolved	D	7440-66-6	27000	2000	280	ug/L			

Analysis Method 200.8

Sample Name GSTI_DUP_072216_1158

Matrix Type: Water

Lab Sample Name: 680-127898-5

Sample Date: 7/22/2016 11:58:00 AM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	T	7440-36-0	40	100	40	ug/L	U	U	
Antimony, Dissolved	D	7440-36-0	0.62	1	0.4	ug/L	J	J	
Arsenic	T	7440-38-2	200	1	0.37	ug/L			
Arsenic, Dissolved	D	7440-38-2	11	1	0.37	ug/L			
Barium	T	7440-39-3	18	2	0.14	ug/L			
Barium, Dissolved	D	7440-39-3	11	2	0.14	ug/L			
Beryllium	T	7440-41-7	9.1	0.4	0.15	ug/L			
Beryllium, Dissolved	D	7440-41-7	8.8	0.4	0.15	ug/L			
Cadmium	T	7440-43-9	100	50	4.3	ug/L			
Cadmium, Dissolved	D	7440-43-9	76	0.5	0.043	ug/L			
Chromium	T	7440-47-3	14	2	1	ug/L			
Chromium, Dissolved	D	7440-47-3	4.9	2	1	ug/L			
Cobalt	T	7440-48-4	92	0.4	0.12	ug/L			
Cobalt, Dissolved	D	7440-48-4	97	0.4	0.12	ug/L			
Copper	T	7440-50-8	8800	500	50	ug/L		J+	Q
Copper, Dissolved	D	7440-50-8	8600	500	50	ug/L			
Lead	T	7439-92-1	100	30	6	ug/L		J	F1
Lead, Dissolved	D	7439-92-1	33	0.3	0.06	ug/L			
Manganese	T	7439-96-5	28000	250	120	ug/L			
Manganese, Dissolved	D	7439-96-5	27000	250	120	ug/L			
Molybdenum	T	7439-98-7	45	100	45	ug/L	U	U	
Molybdenum, Dissolved	D	7439-98-7	45	100	45	ug/L	U	U	
Nickel	T	7440-02-0	58	5	0.4	ug/L			
Nickel, Dissolved	D	7440-02-0	61	5	0.4	ug/L			
Selenium	T	7782-49-2	4.3	2	0.58	ug/L			
Selenium, Dissolved	D	7782-49-2	1.6	2	0.58	ug/L	J	J	
Silver	T	7440-22-4	10	100	10	ug/L	U	U	
Silver, Dissolved	D	7440-22-4	0.1	1	0.1	ug/L	U	U	
Thallium	T	7440-28-0	10	20	10	ug/L	U	U	
Thallium, Dissolved	D	7440-28-0	0.29	0.2	0.1	ug/L			
Vanadium	T	7440-62-2	110	1	0.3	ug/L			
Vanadium, Dissolved	D	7440-62-2	4.2	1	0.3	ug/L			
Zinc	T	7440-66-6	27000	2000	280	ug/L		J+	Q
Zinc, Dissolved	D	7440-66-6	27000	2000	280	ug/L			

Analysis Method 200.8

Sample Name CC18_072216_1215

Matrix Type: Water

Lab Sample Name: 680-127898-6

Sample Date: 7/22/2016 12:15:00 PM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	T	7440-36-0	0.4	1	0.4	ug/L	U	U	
Antimony, Dissolved	D	7440-36-0	0.4	1	0.4	ug/L	U	U	
Arsenic	T	7440-38-2	0.37	1	0.37	ug/L	J	J	
Arsenic, Dissolved	D	7440-38-2	0.37	1	0.37	ug/L	U	U	
Barium	T	7440-39-3	21	2	0.14	ug/L			
Barium, Dissolved	D	7440-39-3	21	2	0.14	ug/L			
Beryllium	T	7440-41-7	1.5	0.4	0.15	ug/L			
Beryllium, Dissolved	D	7440-41-7	1.4	0.4	0.15	ug/L			
Cadmium	T	7440-43-9	11	0.5	0.043	ug/L			
Cadmium, Dissolved	D	7440-43-9	10	0.5	0.043	ug/L			
Chromium	T	7440-47-3	1	2	1	ug/L	U	U	
Chromium, Dissolved	D	7440-47-3	1	2	1	ug/L	U	U	
Cobalt	T	7440-48-4	24	0.4	0.12	ug/L			
Cobalt, Dissolved	D	7440-48-4	23	0.4	0.12	ug/L			
Copper	T	7440-50-8	92	5	0.5	ug/L		J+	Q
Copper, Dissolved	D	7440-50-8	90	5	0.5	ug/L			
Lead	T	7439-92-1	17	0.3	0.06	ug/L			
Lead, Dissolved	D	7439-92-1	13	0.3	0.06	ug/L			
Manganese	T	7439-96-5	8900	25	12	ug/L			
Manganese, Dissolved	D	7439-96-5	8600	25	12	ug/L			
Molybdenum	T	7439-98-7	0.45	1	0.45	ug/L	U	U	
Molybdenum, Dissolved	D	7439-98-7	0.45	1	0.45	ug/L	U	U	
Nickel	T	7440-02-0	16	5	0.4	ug/L			
Nickel, Dissolved	D	7440-02-0	17	5	0.4	ug/L			
Selenium	T	7782-49-2	0.58	2	0.58	ug/L	U	U	
Selenium, Dissolved	D	7782-49-2	0.58	2	0.58	ug/L	U	U	
Silver	T	7440-22-4	0.1	1	0.1	ug/L	U	U	
Silver, Dissolved	D	7440-22-4	0.1	1	0.1	ug/L	U	U	
Thallium	T	7440-28-0	0.1	0.2	0.1	ug/L	U	U	
Thallium, Dissolved	D	7440-28-0	0.1	0.2	0.1	ug/L	U	U	
Vanadium	T	7440-62-2	0.3	1	0.3	ug/L	U	U	
Vanadium, Dissolved	D	7440-62-2	0.3	1	0.3	ug/L	U	U	
Zinc	T	7440-66-6	4100	200	28	ug/L		J+	Q
Zinc, Dissolved	D	7440-66-6	4100	200	28	ug/L			

Analysis Method 200.8

Sample Name CC03D_072216_1230

Matrix Type: Water

Lab Sample Name: 680-127898-7

Sample Date: 7/22/2016 12:30:00 PM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	T	7440-36-0	0.4	1	0.4	ug/L	U	U	
Antimony, Dissolved	D	7440-36-0	0.4	1	0.4	ug/L	U	U	
Arsenic	T	7440-38-2	2	1	0.37	ug/L			
Arsenic, Dissolved	D	7440-38-2	1.3	1	0.37	ug/L			
Barium	T	7440-39-3	13	2	0.14	ug/L			
Barium, Dissolved	D	7440-39-3	13	2	0.14	ug/L			
Beryllium	T	7440-41-7	7.2	0.4	0.15	ug/L			
Beryllium, Dissolved	D	7440-41-7	5.1	0.4	0.15	ug/L			
Cadmium	T	7440-43-9	31	0.5	0.043	ug/L			
Cadmium, Dissolved	D	7440-43-9	30	0.5	0.043	ug/L			
Chromium	T	7440-47-3	1	2	1	ug/L	U	U	
Chromium, Dissolved	D	7440-47-3	1	2	1	ug/L	U	U	
Cobalt	T	7440-48-4	100	0.4	0.12	ug/L			
Cobalt, Dissolved	D	7440-48-4	110	0.4	0.12	ug/L			
Copper	T	7440-50-8	21	5	0.5	ug/L		J+	Q
Copper, Dissolved	D	7440-50-8	11	5	0.5	ug/L			
Lead	T	7439-92-1	76	0.3	0.06	ug/L			
Lead, Dissolved	D	7439-92-1	6.9	0.3	0.06	ug/L			
Manganese	T	7439-96-5	36000	250	120	ug/L			
Manganese, Dissolved	D	7439-96-5	33000	250	120	ug/L			
Molybdenum	T	7439-98-7	0.5	1	0.45	ug/L	J	J	
Molybdenum, Dissolved	D	7439-98-7	0.57	1	0.45	ug/L	J	J	
Nickel	T	7440-02-0	53	5	0.4	ug/L			
Nickel, Dissolved	D	7440-02-0	55	5	0.4	ug/L			
Selenium	T	7782-49-2	0.58	2	0.58	ug/L	U	U	
Selenium, Dissolved	D	7782-49-2	0.58	2	0.58	ug/L	U	U	
Silver	T	7440-22-4	0.1	1	0.1	ug/L	U	U	
Silver, Dissolved	D	7440-22-4	0.1	1	0.1	ug/L	U	U	
Thallium	T	7440-28-0	0.1	0.2	0.1	ug/L	U	U	
Thallium, Dissolved	D	7440-28-0	0.1	0.2	0.1	ug/L	U	U	
Vanadium	T	7440-62-2	0.67	1	0.3	ug/L	J	J	
Vanadium, Dissolved	D	7440-62-2	0.3	1	0.3	ug/L	U	U	
Zinc	T	7440-66-6	15000	2000	280	ug/L		J+	Q
Zinc, Dissolved	D	7440-66-6	14000	2000	280	ug/L			

Analysis Method 245.1

Sample Name GSTO_072216_1054 **Matrix Type:** Water
Lab Sample Name: 680-127898-1 **Sample Date:** 7/22/2016 10:54:00 AM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	T	7439-97-6	0.08	0.2	0.08	ug/L	U	U	
Mercury, Dissolved	D	7439-97-6	0.08	0.2	0.08	ug/L	U	U	

Sample Name GTSC_072216_1122 **Matrix Type:** Water
Lab Sample Name: 680-127898-2 **Sample Date:** 7/22/2016 11:22:00 AM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	T	7439-97-6	0.08	0.2	0.08	ug/L	U	U	
Mercury, Dissolved	D	7439-97-6	0.08	0.2	0.08	ug/L	U	U	

Sample Name GTSP0_072216_1133 **Matrix Type:** Water
Lab Sample Name: 680-127898-3 **Sample Date:** 7/22/2016 11:33:00 AM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	T	7439-97-6	0.08	0.2	0.08	ug/L	U	U	
Mercury, Dissolved	D	7439-97-6	0.08	0.2	0.08	ug/L	U	U	

Sample Name GSTI_072216_1158 **Matrix Type:** Water
Lab Sample Name: 680-127898-4 **Sample Date:** 7/22/2016 11:58:00 AM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	T	7439-97-6	0.08	0.2	0.08	ug/L	U	U	
Mercury, Dissolved	D	7439-97-6	0.08	0.2	0.08	ug/L	U	U	

Sample Name GSTI_DUP_072216_1158 **Matrix Type:** Water
Lab Sample Name: 680-127898-5 **Sample Date:** 7/22/2016 11:58:00 AM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	T	7439-97-6	0.08	0.2	0.08	ug/L	U	U	
Mercury, Dissolved	D	7439-97-6	0.08	0.2	0.08	ug/L	U	U	

Sample Name CC18_072216_1215 **Matrix Type:** Water
Lab Sample Name: 680-127898-6 **Sample Date:** 7/22/2016 12:15:00 PM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	T	7439-97-6	0.08	0.2	0.08	ug/L	U	U	
Mercury, Dissolved	D	7439-97-6	0.08	0.2	0.08	ug/L	U	U	

Analysis Method 245.1

Sample Name		CC03D_072216_1230					Matrix Type: Water		
Lab Sample Name:		680-127898-7	Sample Date:		7/22/2016 12:30:00 PM				
Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	T	7439-97-6	0.08	0.2	0.08	ug/L	U	U	
Mercury, Dissolved	D	7439-97-6	0.08	0.2	0.08	ug/L	U	U	

Analysis Method 2540 D-2011

Sample Name		GSTO_072216_1054					Matrix Type: Water		
Lab Sample Name:		680-127898-1	Sample Date:		7/22/2016 10:54:00 AM				
Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Total Suspended Solids	T	STL00161	6.3	3.5	3.5	mg/L			

Sample Name		GTSC_072216_1122					Matrix Type: Water		
Lab Sample Name:		680-127898-2	Sample Date:		7/22/2016 11:22:00 AM				
Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Total Suspended Solids	T	STL00161	880	16	16	mg/L			

Sample Name		GTSP0_072216_1133					Matrix Type: Water		
Lab Sample Name:		680-127898-3	Sample Date:		7/22/2016 11:33:00 AM				
Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Total Suspended Solids	T	STL00161	95	3.6	3.6	mg/L			

Sample Name		GSTI_072216_1158					Matrix Type: Water		
Lab Sample Name:		680-127898-4	Sample Date:		7/22/2016 11:58:00 AM				
Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Total Suspended Solids	T	STL00161	650	10	10	mg/L			

Sample Name		GSTI_DUP_072216_1158					Matrix Type: Water		
Lab Sample Name:		680-127898-5	Sample Date:		7/22/2016 11:58:00 AM				
Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Total Suspended Solids	T	STL00161	580	10	10	mg/L			

Analysis Method 2540 D-2011

Sample Name	CC18_072216_1215	Matrix Type:	Water
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Lab Sample Name:	680-127898-6	Sample Date:	7/22/2016 12:15:00 PM
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Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Total Suspended Solids	T	STL00161	10	3.6	3.6	mg/L			

Sample Name	CC03D_072216_1230	Matrix Type:	Water
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Lab Sample Name:	680-127898-7	Sample Date:	7/22/2016 12:30:00 PM
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Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Total Suspended Solids	T	STL00161	50	4	4	mg/L			
